LISTING OF CLAIMS:

Claims 1-54 are pending in this application. Claims 1-4, 6, 8, 11, 18, 20, 23, 24, 26, 28, 30, 33, 40, 42, 45, 47, 50 and 52 are amended as shown below.

The following listing of claims will replace all prior versions and listings, of claims in this application.

1. (Currently Amended) An image reading apparatus comprising:

a document feeder adapted to convey an original;

an image sensor adapted to read the original conveyed to ~~a platen~~ an original table by said document feeder and output image data of the read original;

a data cutting unit adapted to cut the amount of image data output from said image sensor;

a memory adapted to store image data for each pixel;

a controller adapted to control said image sensor to execute reading at a predetermined position a plurality of number of times without placing any original on the ~~platen~~ original table while driving an original convey member of said document feeder, and control to store in said memory image data read at the predetermined position for a first time of the plurality of number of times and outputted from said data cutting unit;

a comparator adapted to compare image data ~~of the original output from said image sensor~~ read at the predetermined position for a second and later times and outputted from said data cutting unit with image data of a corresponding pixel, which is stored in said memory, ~~every time the original convey member is read,~~ and update the image data stored in said memory to data having a larger value; and

a detector adapted to detect a presence/absence and position of dust and/or dirt on the ~~platen~~ original table on the basis of the ~~number of times of reading the original convey~~

~~member and the image data stored in said memory after the end of a plurality of number of~~

~~times of reading the original convey member~~ <u>comparison result of said comparator</u>.

2. (Currently Amended) The apparatus according to claim 1 ~~further~~

~~comprising a resolution converter adapted to reduce~~ , <u>wherein said data cutting unit reduces</u> a

resolution of the image data output from said image sensor, <u>and</u>

~~wherein~~ said memory has a capacity corresponding to the number of pixels of

one line of the image data whose resolution is reduced by said ~~resolution converter~~ <u>data</u>

<u>cutting unit,~~and~~</u>

~~said comparator compares the image data having the reduced resolution with~~

~~the image data of the corresponding pixel, which is stored in said memory~~.

3. (Currently Amended) The apparatus according to claim 2, wherein said

~~resolution converter~~ <u>data cutting unit</u> outputs a smallest image data value for every plural

number of pixels adjacent to each other.

4. (Currently Amended) The apparatus according to claim 1 ~~further~~

~~comprising a grayscale converter adapted to reduce~~ , <u>wherein said data cutting unit reduces</u> a

grayscale level of the image data output from said image sensor,

~~wherein~~ said memory has a capacity corresponding to the number of pixels of

one line of the image data whose grayscale level is reduced by said ~~grayscale converter~~ <u>data</u>

<u>cutting unit</u>, and

said comparator compares the image data having the reduced grayscale level

with the image data of the corresponding pixel, which is stored in said memory.

5. (Original) The apparatus according to claim 1, wherein when dust or dirt is

detected by said detector, said controller moves a position of said image sensor.

6. (Currently Amended) The apparatus according to claim 1, wherein the

apparatus has a first reading mode in which a position of said image sensor is fixed, and the

original is read while being conveyed by said document feeder and a second reading mode in which the original is stationarily held on the ~~platen~~ original table and read while moving said image sensor, and

when the dust or dirt is detected by said detector, said controller moves said image sensor to one of a plurality of predetermined positions, and when the dust or dirt is detected by said detector at all of the plurality of positions, said controller inhibits the first reading mode and sets the second reading mode.

7. (Original) The apparatus according to claim 6 further comprising a notification unit adapted to notify a user of inhibition of the first reading mode.

8. (Currently Amended) The apparatus according to claim 6, wherein said controller permits the first reading mode in accordance with removal of the dust or dirt on the ~~platen~~ original table.

9. (Original) The apparatus according to claim 1 further comprising an image processing unit adapted to replace pixel data corresponding to a position of the detected dust or dirt with pixel data of a pixel position adjacent to the position of the dust or dirt.

10. (Original) The apparatus according to claim 1 further comprising an image processing unit adapted to replace pixel data corresponding to a position of the detected dust or dirt with pixel data input for an immediately preceding pixel.

11. (Currently Amended) An image reading apparatus comprising:

a document feeder adapted to convey an original;

an image sensor adapted to read the original conveyed to a ~~platen~~ original table by said document feeder;

a controller adapted to control said image sensor to execute reading at a predetermined position a plurality of number of times without placing any original on the ~~platen~~ original table while driving an original convey member of said document feeder;

an adder adapted to add for each pixel image data of the original convey member read the plurality of number of times;

a memory adapted to store for each pixel the image data added by said adder;

a determination unit adapted to determine a threshold value on the basis of the number of times of reading the original convey member and the image data stored in said memory; and

a detector adapted to detect a presence/absence and position of dust and/or dirt on the ~~platen~~ <u>original table</u> on the basis of the threshold value and image data output from said image sensor without placing any original on the ~~platen~~ <u>original table</u>.

12. (Original) The apparatus according to claim 11, wherein when the image data has a value smaller than the threshold value, said detector determines that the dust or dirt is present.

13. (Original) The apparatus according to claim 11, wherein said determination unit determines the threshold value by subtracting a predetermined value from the image data stored in said memory.

14. (Original) The apparatus according to claim 11, wherein when the image data value stored in said memory is less than a specific value, said determination unit sets the threshold value to a predetermined value.

15. (Original) The apparatus according to claim 11 further comprising a resolution converter adapted to reduce a resolution of the image data output from said image sensor,

wherein said adder adds the image data whose resolution is reduced by said resolution converter, and

said memory has a capacity corresponding to the number of pixels of one line of the image data having the reduced resolution.

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16. (Original) The apparatus according to claim 11 further comprising a grayscale converter adapted to reduce a grayscale level of the image data output from said image sensor,

wherein said adder adds the image data whose grayscale level is reduced by said grayscale converter, and

said memory has a capacity corresponding to the number of pixels of one line of the image data having the reduced grayscale level.

17. (Original) The apparatus according to claim 11, wherein when the dust or dirt is detected by said detector, said controller moves a position of said image sensor.

18. (Currently Amended) The apparatus according to claim 11, wherein the apparatus has a first reading mode in which a position of said image sensor is fixed, and the original is read while being conveying by said document feeder and a second reading mode in which the original is stationarily held on the ~~platen~~ <u>original table</u> and read while moving said image sensor, and

when the dust or dirt is detected by said detector, said controller moves said image sensor to one of a plurality of predetermined positions, and when the dust or dirt is detected by said detector at all of the plurality of positions, said controller inhibits the first reading mode and sets the second reading mode.

19. (Original) The apparatus according to claim 18 further comprising a notification section adapted to notify a user of inhibition of the first reading mode.

20. (Currently Amended) The apparatus according to claim 18, wherein said controller permits the first reading mode in accordance with removal of the dust or dirt on the ~~platen~~ <u>original table</u>.

21. (Original) The apparatus according to claim 11 further comprising an image processing unit adapted to replace pixel data corresponding to a position of the

detected dust or dirt with pixel data of a pixel position adjacent to the position of the dust or

dirt.

22. (Original) The apparatus according to claim 11 further comprising an

image processing unit adapted to replace pixel data corresponding to a position of the

detected dust or dirt with pixel data input for an immediately preceding pixel.

23. (Currently Amended) A dust detection method in an image reading

apparatus having a document feeder adapted to convey an original, and an image sensor

adapted to read the original conveyed to a ~~platen~~ original table by the document feeder and

output image data of the read original, ~~and a memory adapted to store image data for each~~

~~pixel,~~ comprising:

controlling the image sensor to execute reading at a predetermined position a

plurality of number of times without placing any original on the ~~platen~~ original table while

driving an original convey member of the document feeder;

cutting the amount of image data output from the image sensor;

storing in a memory image data for each pixel read at the predetermined

position for a first time of the plurality of number of times after the amount of the image data

is cut;

comparing image data ~~of the original output from the image sensor~~ read at the

predetermined position for a second and later times after the amount of the image data is cut

with image data of a corresponding pixel, which is stored in the memory, ~~every time the~~

~~original convey member is read~~;

updating the image data stored in the memory to data having a larger value on

the basis of a comparison result; and

detecting a presence/absence and position of dust and/or dirt on the ~~platen~~

original table on the basis of the ~~number of times of reading the original convey member and~~

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~~the image data stored in the memory after the end of a plurality of number of times of reading~~

~~the original convey member~~ comparison result.

24. (Currently Amended) The method according to claim 23 ~~further~~

~~comprising:~~

~~reducing~~ , wherein, upon cutting the amount of image data, a resolution of the

image data output from the image sensor is reduced, and

~~wherein~~ the memory has a capacity corresponding to the number of pixels of

one line of the image data whose resolution is reduced~~, and~~

~~upon comparing image data output from the image sensor with image data~~

~~stored in the memory, the image data having the reduced resolution is compared with the~~

~~image data of the corresponding pixel, which is stored in the memory~~.

25. (Original) The method according to claim 24, wherein upon converting the

resolution, a smallest image data value for every plural number of pixels adjacent to each

other is output.

26. (Currently Amended) The method according to claim 23 ~~further~~

~~comprising:~~

~~reducing~~ , wherein, upon cutting the amount of image data, a grayscale level

of the image data output from the image sensor is reduced, and

~~wherein~~ the memory has a capacity corresponding to the number of pixels of

one line of the image data whose grayscale level is reduced~~, and~~

~~upon comparing image data output from the image sensor with image data~~

~~stored in the memory, the image data having the reduced grayscale level is compared with the~~

~~image data of the corresponding pixel, which is stored in the memory~~.

27. (Original) A control method for the image reading apparatus which executes the dust detection method of claim 23, wherein when the dust or dirt is detected, a position of the image sensor is moved, and the dust detection method is repeatedly executed.

28. (Currently Amended) A control method for the image reading apparatus which executes the dust detection method of claim 23, wherein

the image reading apparatus has a first reading mode in which a position of the image sensor is fixed, and the original is read while being conveyed by the document feeder and a second reading mode in which the original is stationarily held on the ~~platen~~ <u>original table</u> and read while moving the image sensor, and

the method comprises:

moving the image sensor to one of a plurality of predetermined positions when the dust or dirt is detected, and repeatedly executing the dust detection method, and

inhibiting the first reading mode and setting the second reading mode when the dust or dirt is detected at all of the plurality of positions.

29. (Original) The method according to claim 28, characterized by further comprising notifying a user of inhibition of the first reading mode.

30. (Currently Amended) The method according to claim 28, characterized by further comprising permitting the first reading mode in accordance with removal of the dust or dirt of the ~~platen~~ <u>original table</u>.

31. (Original) An image processing method in the image reading apparatus which executes the dust detection method of claim 23, comprising replacing pixel data corresponding to a position of the detected dust or dirt with pixel data of a pixel position adjacent to the position of the dust or dirt.

32. (Original) An image processing method in the image reading apparatus which executes the dust detection method of claim 23, comprising replacing pixel data

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corresponding to a position of the detected dust or dirt with pixel data input for an immediately preceding pixel.

33. (Currently Amended) A dust detection method in an image reading apparatus having a document feeder adapted to convey an original, and an image sensor adapted to read the original conveyed to a ~~platen~~ <u>original table</u> by the document feeder, comprising:

controlling the image sensor to execute reading at a predetermined position a plurality of number of times without placing any original on the ~~platen~~ <u>original table</u> while driving an original convey member of the document feeder;

adding for each pixel image data of the original convey member read the plurality of number of times;

storing for each pixel the added image data in a memory; determining a threshold value on the basis of the number of times of reading the original convey member and the image data stored in the memory; and

detecting a presence/absence and position of dust and/or dirt on the ~~platen~~ <u>original table</u> on the basis of the threshold value and image data output from the image sensor without placing any original on the ~~platen~~ <u>original table</u>.

34. (Original) The method according to claim 33, wherein upon detecting the presence/absence and position of dust and/or dirt, when the image data has a value smaller than the threshold value, it is determined that the dust or dirt is present.

35. (Original) The method according to claim 33, wherein the threshold value is determined by subtracting a predetermined value from the image data stored in the memory.

36. (Original) The method according to claim 33, wherein when the image data value stored in the memory is less than a specific value, the threshold value is set to a predetermined value.

37. (Original) The method according to claim 33 further comprising reducing a resolution of the image data output from the image sensor,

wherein upon adding the image data, the image data having the reduced resolution is added, and

the memory has a capacity corresponding to the number of pixels of one line of the image data having the reduced resolution.

38. (Original) The method according to claim 33 further comprising reducing a grayscale level of the image data output from the image sensor,

wherein upon adding the image data, the image data having the reduced grayscale level is added, and

the memory has a capacity corresponding to the number of pixels of one line of the image data having the reduced grayscale level.

39. (Original) A control method for the image reading apparatus which executes the dust detection method of claim 33, wherein when the dust or dirt is detected, a position of the image sensor is moved, and the dust detection method is repeatedly executed.

40. (Currently Amended) A control method for the image reading apparatus which executes the dust detection method of claim 33, wherein

the image reading apparatus has a first reading mode in which a position of the image sensor is fixed, and the original is read while being conveyed by the document feeder and a second reading mode in which the original is stationarily held on the ~~platen~~ original table and read while moving the image sensor, and

the method comprises:

moving the image sensor to one of a plurality of predetermined positions when the dust or dirt is detected, and repeatedly executing the dust detection method, and

inhibiting the first reading mode and setting the second reading mode when the dust or dirt is detected at all of the plurality of positions.

41. (Original) The method according to claim 40, characterized by further comprising notifying a user of inhibition of the first reading mode.

42. (Currently Amended) The method according to claim 40, characterized by further comprising permitting the first reading mode in accordance with removal of the dust or dirt of the ~~platen~~ original table.

43. (Original) An image processing method in the image reading apparatus which executes the dust detection method of claim 33, comprising replacing pixel data corresponding to a position of the detected dust or dirt with pixel data of a pixel position adjacent to the position of the dust or dirt.

44. (Original) An image processing method in the image reading apparatus which executes the dust detection method of claim 33, comprising replacing pixel data corresponding to a position of the detected dust or dirt with pixel data input for an immediately preceding pixel.

45. (Currently Amended) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for a dust detection method in an image reading apparatus having a document feeder adapted to convey an original, and an image sensor adapted to read the original conveyed to ~~a platen~~ an original table by the document feeder and output image data of the read original, ~~and a memory adapted to store image data for each pixel~~, said product including:

first computer readable program code means for controlling the image sensor to execute reading at a predetermined position a plurality of number of times without placing

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any original on the ~~platen~~ <u>original table</u> while driving an original convey member of the

document feeder;

<u>second computer readable program code means for cutting the amount of

image data output from the image sensor;</u>

<u>third computer readable program code means for storing in a memory image

data for each pixel read at the predetermined position for a first time of the plurality of

number of times after the amount of the image data is cut;</u>

~~second~~ <u>fourth</u> computer readable program code means for comparing image

data ~~of the original output from the image sensor~~ <u>read at the predetermined position for a

second and later times after the amount of the image data is cut</u> with image data of a

corresponding pixel, which is stored in the memory~~, every time the original convey member

is read~~;

~~third~~ <u>fifth</u> computer readable program code means for updating the image data

stored in the memory to data having a larger value on the basis of a comparison result; and

~~fourth~~ <u>sixth</u> computer readable program code means for detecting a

presence/absence and position of dust and/or dirt on the ~~platen~~ <u>original table</u> on the basis of

the ~~number of times of reading the original convey member and the image data stored in the

memory after the end of a plurality of number of times of reading the original convey

member~~ <u>comparison result</u>.

46. (Original) A computer program product comprising a computer usable

medium having computer readable program code means embodied in said medium for a

control method for the image reading apparatus which executes the dust detection method of

claim 23, said product including:

first computer readable program code means for moving a position of the

image sensor when the dust or dirt is detected; and

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second computer readable program code means for repeatedly executing the dust detection method.

47. (Currently Amended) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for a control method for the image reading apparatus which executes the dust detection method of claim 23, wherein the image reading apparatus has a first reading mode in which a position of the image sensor is fixed, and the original is read while being conveyed by the document feeder and a second reading mode in which the original is stationarily held on the ~~platen~~ original table and read while moving the image sensor, said product including:

first computer readable program code means for moving the image sensor to one of a plurality of predetermined positions when the dust or dirt is detected, and repeatedly executing the dust detection method, and

second computer readable program code means for inhibiting the first reading mode and setting the second reading mode when the dust or dirt is detected at all of the plurality of positions.

48. (Original) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for an image processing method in the image reading apparatus which executes the dust detection method of claim 23, said product including:

computer readable program code means for replacing pixel data corresponding to a position of the detected dust or dirt with pixel data of a pixel position adjacent to the position of the dust or dirt.

49. (Original) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for an

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image processing method in the image reading apparatus which executes the dust detection

method of claim 23, said product including:

computer readable program code means for replacing pixel data corresponding

to a position of the detected dust or dirt with pixel data input for an immediately preceding

pixel.

50. (Currently Amended) A computer program product comprising a computer

usable medium having computer readable program code means embodied in said medium for

a dust detection method in an image reading apparatus having a document feeder adapted to

convey an original, and an image sensor adapted to read the original conveyed to a ~~platen~~

original table by the document feeder, said product including:

first computer readable program code means for controlling the image sensor

to execute reading at a predetermined position a plurality of number of times without placing

any original on the ~~platen~~ original table while driving an original convey member of the

document feeder;

second computer readable program code means for adding for each pixel

image data of the original convey member read the plurality of number of times;

third computer readable program code means for storing for each pixel the

added image data in a memory;

fourth computer readable program code means for determining a threshold

value on the basis of the number of times of reading the original convey member and the

image data stored in the memory; and

fifth computer readable program code means for detecting a presence/absence

and position of dust and/or dirt on the ~~platen~~ original table on the basis of the threshold value

and image data output from the image sensor without placing any original on the ~~platen~~

original table.

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51. (Original) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for a control method for the image reading apparatus which executes the dust detection method of claim 33, said product including:

first computer readable program code means for moving a position of the image sensor when the dust or dirt is detected; and

second computer readable program code means for repeating the dust detection method.

52. (Currently Amended) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for a control method for the image reading apparatus which executes the dust detection method of claim 33, wherein the image reading apparatus has a first reading mode in which a position of the image sensor is fixed, and the original is read while being conveyed by the document feeder and a second reading mode in which the original is stationarily held on the ~~platen~~ original table and read while moving the image sensor, said product including:

first computer readable program code means for moving the image sensor to one of a plurality of predetermined positions when the dust or dirt is detected, and repeatedly executing the dust detection method, and

second computer readable program code means for inhibiting the first reading mode and setting the second reading mode when the dust or dirt is detected at all of the plurality of positions.

53. (Original) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for an image processing method in the image reading apparatus which executes the dust detection method of claim 33, said product including:

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computer readable program code means for replacing pixel data corresponding to a position of the detected dust or dirt with pixel data of a pixel position adjacent to the position of the dust or dirt.

54. (Original) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for an image processing method in the image reading apparatus which executes the dust detection method of claim 33, said product including:

computer readable program code means for replacing pixel data corresponding to a position of the detected dust or dirt with pixel data input for an immediately preceding pixel.

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